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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/976,210	10/11/2001	Victor F. Petrenko	393551	1402
7590 12/27/2005			EXAMINER	
Thomas Swenson Lathrop & Gage L.C. Suite 302 4845 Pearl East Circle Boulder, CO 80301			VAN, QUANG T	
			ART UNIT	PAPER NUMBER
			3742	

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

JP

Office Action Summary	Application No.		Applicant(s)	
	09/976,210		PETRENKO, VICTOR F.	
	Examiner		Art Unit	
	Quang T. Van		3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE filed on 12/05/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-9,13,15,16 and 18-21 is/are rejected.
- 7) ☒ Claim(s) 4,10-12,14 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuan et al (US 6,825,444) in view of Polny, Jr. (US 5,571,550). Tuan discloses, figure 10, a heated bridge deck system comprising a first electrode (24) embedded into or coated onto an object to be protected from ice formation, a second electrode (26), the first electrode (24) and the second electrode (26) defining an interelectrode space (figure 10) between the first electrode (24) and the second electrode (26), the first electrode and the second electrode defining an interelectrode distance (D) that separates the first electrode and the second electrode, an AC power source (col. 14, lines 11-15) for providing an AC voltage across the first and second electrodes, wherein the interfacial ice is melted upon application of the AC voltage. However, Tuan does not disclose an AC power source having a frequency greater than 1000Hz and less than 300KHz. Polny discloses an AC power source having a frequency greater than 1000Hz and less than 300KHz (col. 12, lines 35-45). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Tuan a frequency greater than 1000Hz and less than 300KHz as taught by Polny in order to limit the heat apply to the heated object.

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3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuan et al (US 6,825,444) in view of Polny, Jr. (US 5,571,550) and further in view of Zieve (US 4,895,322) cited in previous Office Action. Tuan/Polny disclose substantially all features of the claimed invention except the AC power source provides an AC voltage in range of about from 10 volts to 500 volts. Zieve discloses an AC power source provides an AC voltage in range of about from 10 volts to 500 volts (col. 4, lines 10-12). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Tuan/Polny an AC power source provides an AC voltage in range of about from 10 volts to 500 volts as taught by Zieve in order to provide sufficient power to the system for deicing.

4. Claims 3, 6, 13, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuan et al (US 6,825,444) in view of Polny, Jr. (US 5,571,550) and further in view of Bird (US 4,732,351) both cited in previous Office Action. Tuan/Polny disclose substantially all features of the claimed invention except an electrical insulator located in the interelectrode space. Bird discloses an electrical insulator (32) located in the interelectrode space (Fig. 3, between electrodes 34 and 36). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Tuan/Polny an electrical insulator located in the interelectrode space as taught by Bird in order to maintain the potential different between the electrodes. With regard to claims 13, 15 and 16, Bird discloses first and second electrodes comprising a conductive grid (col. 5, lines 13-19 and col. 4, lines 56-57).

5. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuan et al (US 6,825,444) in view of Polny, Jr. (US 5,571,550) and further in view of Weinstein (US 6,239,601) cited in previous Office Action. Tuan/Polny disclose substantially all features of the claimed invention except the interelectrode distance has a value in a range of about from 50 μm to 500 μm . Weinstein discloses an interelectrode distance has a value in a range of about from 50 μm to 500 μm (col. 4, lines 10-13). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Tuan/Polny an interelectrode distance has a value in a range of about from 50 μm to 500 μm as taught by Weinstein in order to control the applying voltage. With regard to claims 8 and 9, It would have been obvious to one having ordinary skill in the art to modify the interelectrode distance has a value less than 50 μm or has a value greater than 500 μm . Doing so would control the applying voltage, since the less value for the less applying voltage and the more value for the greater applying voltage.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuan et al (US 6,825,444) in view of Weinstein (US 6,239,601). Tuan discloses substantially all features of the claimed invention except the interelectrode distance has a value in a range of about from 50 μm to 500 μm . Weinstein discloses an interelectrode distance has a value in a range of about from 50 μm to 500 μm (col. 4, lines 10-13). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Tuan an interelectrode distance has a value in a range of about from 50 μm to 500 μm as taught by Weinstein in order to control the applying voltage.

7. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuan et al (US 6,825,444) in view of Weinstein (US 6,239,601) and further in view of Polny, Jr. (US 5,571,550). Tuan/Weinstein disclose substantially all features of the claimed invention except an AC power source having a frequency greater than 1000Hz and less than 300KHz. Polny discloses an AC power source having a frequency greater than 1000Hz and less than 300KHz (col. 12, lines 35-45). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Tuan/Weinstein a frequency greater than 1000Hz and less than 300KHz as taught by Polny in order to limit the heat apply to the heated object.

8. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuan et al (US 6,825,444) in view of Weinstein (US 6,239,601) and further in view of Zieve (US 4,895,322). Tuan/Weinstein disclose substantially all features of the claimed invention except the AC power source provides an AC voltage in range of about from 10 volts to 500 volts. Zieve discloses an AC power source provides an AC voltage in range of about from 10 volts to 500 volts (col. 4, lines 10-12). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Tuan/Weinstein an AC power source provides an AC voltage in range of about from 10 volts to 500 volts as taught by Zieve in order to provide sufficient power for deicing system.

9. Claims 4, 10-12, 14 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not show or suggest the insulator comprises a nonconductive rubber windshield wiper blade as recited in claim 4, the first electrode and second electrode comprise a layer of conductive glass as recited in claims 10-11; the first electrode comprises a transparent conductive metal oxide as recited in claim 12; and the second electrode comprises a conductive rubber windshield wiper blade as recited in claim 17.

Response to Amendment

11. Applicant's arguments filed 12/05/2005 have been fully considered but they are not persuasive.

12. Applicant argues "Tuan and /or Polny, alone or in combination, render claim 1 obvious". The Examiner disagrees. Tuan discloses substantially all features of the claimed invention (as disclosed above par. 2) except to mention about the radio frequency range greater than 1000Hz and less than 300KHz. Polny discloses an AC power source having a frequency greater than 1000Hz and less than 300KHz (col. 12, lines 35-45). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Tuan a frequency greater than 1000Hz and less than 300KHz as taught by Polny in order to limit the range of heat apply to the heated object. Tuan and Polny are both in the technical field AC source applying Radio Frequency to heat the object (ice, food, concrete, etc). Therefore, Tuan and Polny are considered analogous art which one ordinary skill in the art would look in to combine. Further, claim 1 does not preclude electrodes is embedded within the concrete such

that an applied voltage will resistively heat a conductive concrete slab (and, by conduction, melt any ice thereon). Therefore, Tuan's reference still read on the claimed limitations. Furthermore, SPECTRUM CHART (<http://www.adec.edu/tag/spectrum.html>) discloses common frequency range for use in Radio Frequency application.

13. With regard to claim 2 rejection, applicant argues "The teachings of Tuan, Polny and Zieve are incongruous. and there is no motivation to combine the references. One skill in the art would not use an electrical voltage sufficient to shatter ice from an aircraft wing (Zieve), at a frequency sufficient to avoid electrolysis of food (Polny) to melt ice from a bridge surface (Tuan). The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Tuan/Polny disclose substantially all features of the claimed invention except the AC power source provides an AC voltage in range of about from 10 volts to 500 volts. Zieve discloses an AC power source provides an AC voltage in range of about from 10 volts to 500 volts (col. 4, lines 10-12). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Tuan/Polny an AC power source provides an AC voltage in range of about from 10 volts to 500 volts as taught by Zieve in order to provide sufficient power to the system for deicing. Further, Zieve has been cited for the missing "an AC power source provides an AC voltage in range of about

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from 10 volts to 500 volts". As same as Tuan, Polny, Zieve in the technical field AC source with Radio Frequency to heat the object (ice, food, concrete, etc). Therefore, Tuan, Polny and Zieve are considered analogous art which one ordinary skill in the art would look in to combine.

Further, the examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Nomiya*, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. *In re Bozek*, 163 USPQ 545 (CCPA 1969).

14. With regard to claim 3, applicant argues "Bird does not discloses an electrical insulator. He discloses a piezoelectric material (col. 4, lines 57-59) that receives and transmits voltages; thus piezoelectric material (12) is a conductor". Bird disclosed an electrical insulator (32) in the interelectrode space. The Examiner is apologized for the typo error of electrical insulator (32) instead of (12).

15. With regard to claims 6, 13, 15-16 and 18, Applicant's argument that there is no suggestion or motivation to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or

motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Tuan/Polny disclose substantially all features of the claimed invention except the interelectrode distance has a value in a range of about from 50 μm to 500 μm . Weinstein discloses an interelectrode distance has a value in a range of about from 50 μm to 500 μm (col. 4, lines 10-13). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Tuan/Polny an interelectrode distance has a value in a range of about from 50 μm to 500 μm as taught by Weinstein in order to control the applying voltage. Tuan, further, discloses “a greater distance between the electrodes requires increased voltage to heat the conductive concrete mixture” (col. 15, lines 25-25), which also means the smaller distance between the electrodes requires less voltage to heat the conductive concrete mixture.

Further, the examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Nomiya*, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). References are

evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. *In re Bozek*, 163 USPQ 545 (CCPA 1969).

16. This is a RCE of applicant's earlier Application No. 09/976,210. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: The Spectrum Chart (<http://www.adec.edu/tag/spectrum.html>) discloses common frequency range for use in Radio Frequency application.


18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang T. Van whose telephone number is 571-272-4789. The examiner can normally be reached on 8:00Am 7:00Pm M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


QV

December 20, 2005


Quang T Van
Primary Examiner
Art Unit 3742